SASKATCHEWAN HEALTH RESEARCH BOARD

ANNUAL REPORT

Period ending March 31, 1991

—Saskatchewan Health Research Board—

#5—3002 Louise Street
Saskatoon, Saskatchewan
S7J 3L8 (306) 373-5575
Fax (306) 933-6541

November, 1991

The Hon. Louise Simard
Minister of Health
Legislative Building
REGINA, Saskatchewan
S4S OB3

Dear Ms. Simard:

I have the pleasure of submitting the Annual Report of the Saskatchewan Health Research Board for the fiscal year ending March 31, 1991.

Respectfully submitted

Dr. Bev Robertson
Chairman

92-03557/

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1. CHAIRPERSON'S STATEMENT

The SHRB concluded its twelfth year of operation in 1990-91. In previous Annual Reports we noted that the health research community in Saskatchewan was approaching a crossroads in a number of areas. The Board has a unique mandate in the province by virtue of its responsibility to assist the development of health research in all disciplines. To fulfill its obligations, the Board monitors national activity and funding trends, and attempts to assess Saskatchewan performance and prospects in a broader context.

The Board can point with pride to a number of achievements over the years. Notable among these are:

* launching the careers of nearly 100 Saskatchewan investigators through the Establishment Grant Programme. Within five years of receiving the initial SHRB award, these investigators typically obtain three to seven times the amount of our one-time grant from external agencies;

* an estimated 1000 publications directly arising from SHRB-sponsored work, many of which have appeared in leading international journals;

* research in areas directly relevant to the Saskatchewan public, such as:

  ALZHEIMER'S DISEASE: basic research on changes in brain tissue and pathology (Drs. Ang, Subba Rao); clinical studies on behaviour of Alzheimer's victims in long term care (Dr. Stewart);

  ARTHRITIS: prevalence among children, and the relationship of autoantibodies to the disease (Dr. Rosenberg); costs of care for arthritis sufferers (Dr. Mitchell);

  EXERCISE AND FITNESS: long-term study of physical development of young adults (Drs. Mirwald and Bailey); factors affecting adherence to exercise programmes (Dr. Spink);

  CANCER: exposure to radon as a factor in lung cancer in women (Dr. McDuffie); needs of families of cancer patients (Prof. Dyck); prevalence of cancer among Indians (Ms. Gillis); synthesis and evaluation of anti-cancer drugs (Dr. Tao Chen).

In addition, the Board funds a substantial amount of basic biomedical research on fundamental biological processes. Knowledge of these processes is essential to our understanding of human diseases and developing effective interventions.

These, and other examples of productive and important SHRB-sponsored research are a source of pride and accomplishment for the province.

In today's environment a province's health research success rests primarily on two considerations: funding, and coordination. We need not reiterate the limitations imposed by funding restrictions; suffice it to say that Saskatchewan is falling behind other provinces in terms of both local and external funding, with no imminent prospects for improvement. We believe that

our research community has done very well with few resources: taking inflation into account, the Board's grant for 1990-91 was less than it was in 1980-81.

Given these realities, it is even more vital that individuals, agencies, and institutions involved in health research coordinate their efforts to obtain maximum productivity and achievement from the resources available. Especially important is the relationship between the universities and external funding agencies such as the SHRB. It became apparent during the year that one of our most innovative and successful initiatives--the $500,000 grant to the Reproductive Biology Research Unit at the University of Saskatchewan--has experienced significant impediments because of the University's inability to accommodate its space requirements. Experiences in other environments have shown that the so-called "centres of excellence" approach to research cannot succeed without firm commitments from granting agencies and the host universities. The Board recognizes the financial difficulties facing our universities and their diverse responsibilities. But we also have come to realize that our forays into "bigger science" in focussed areas cannot succeed unless the host institution's infrastructure is adequate. Both SHRB and university funding are provincial government responsibilities; it would be highly desirable if there were a mechanism to ensure that both parties can sustain initiatives jointly in order to create the best possible opportunities for success on a national and international level.

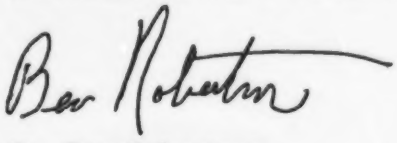
Another example of fragmentation is the lack of common perspective among most provincial government departments whose mandates have an impact on research in Saskatchewan. A few years ago, new money for health research became available. The Science and Technology Division of the Department of Economic Diversification and Trade wanted to develop certain areas, notably technology transfer, while Health wanted to concentrate on health care evaluation research. Either objective can be pursued given sufficient funding, personnel, and commitment. However, a province with an extremely underdeveloped scientific infrastructure cannot, in our view, afford to have uncoordinated views, expectations, and priorities. There have been notable Canadian successes--for example our "Silicon Valley North" in Kanata, Ontario, just outside Ottawa. The key factors were the commitment of planners in municipal and provincial governments, and of local post-secondary educational institutions to infrastructure, combined with a long term perspective. Scientific success no longer observes strict, sectoral boundaries. Saskatchewan's long term success will depend significantly on the extent to which key players emerge from relative isolation to become a cohesive team.

We recognize that increased coordination may require significant reorganization of the system, including ourselves. We welcome the prospect of a re-examination of the mandates, activities, and objectives of all involved in Saskatchewan science (of which health research is but a part); if the SHRB in its current form cannot make the best possible contribution, then change it must.

Finally, the Board must point out that the expectations of health research must be commensurate with the resources available. Our grantees have been productive and ambitious over the years. We have set aside funds for group

grants, but our awardees are being asked to compete with groups across the country who typically receive five to ten times as much start-up funding for similar new initiatives. Recruitment of outstanding young scientists to Saskatchewan is difficult because of our geographic isolation, heavy teaching loads, and the absence of "critical mass" in increasingly complex areas. Next year's Annual Report will describe how difficult it has been to develop a Health Evaluation Research Group, mainly due to a combination of historical problems and insufficient funding.

There are growing signs that coordination of effort at all levels will be a necessity, not an option. The newly appointed president of the Medical Research Council of Canada, Dr. Henry Friesen, has indicated that he envisions additional emphasis on coordination of federal and provincial initiatives. This is likely to mean that provinces will be expected to establish policies and start-up funds which allow groups to gain access to federal funding. In other words, if Saskatchewan hopes to participate in joint ventures, it will have to develop the mechanisms and funding without which even our best investigators will be unable to respond to new and larger competitions.



Dr. Bev Robertson
Chairperson

2. LEGISLATIVE AUTHORITY AND MANDATE

The SHRB was established as a corporate body under The Health Research Act, proclaimed September 15, 1979, to administer the Saskatchewan Health Research Fund. The Board was empowered under the Act to "assist and stimulate research in the healing arts and health sciences including:

" - the causes, detection, distribution, prevention and management of human illness and disabling conditions;

" - health maintenance and health promotion;

" - the social, environmental, and biological aspects of the human aging process;

" - the utilization of health services."

The Board is to consist of at least six and not more than twelve members appointed by the Lieutenant Governor in Council who are residents of Saskatchewan as follows: two representatives from the health sciences or healing arts in the University of Saskatchewan; one from the University of Regina; one member from the Saskatchewan Department of Education; one member from the Saskatchewan Department of Health; and up to seven others. Both the Chairman and Vice-Chairman are designated by the Lieutenant Governor in Council. Appendix 1 lists the members who served on the Board during 1990-91

3. THE SASKATCHEWAN HEALTH RESEARCH FUND

With the proclamation of the Act, the Saskatchewan Health Research Fund came into being for the purpose of assisting and stimulating research in the healing arts and health sciences. From time to time during its history the Board has received grants for special purposes from Saskatchewan Health, and transactions in these instances are accounted for separately. During each of 1989-90 and 1990-91, the Board received $500,000 for evaluation research, and the financial statements include a separate accounting for these grants. The General Fund received $1 million during 1990-91, identical to the amount received in the previous year. Attached as Appendix 2 are the financial statements which detail the financial transactions of the Board as certified by the Provincial Auditor.

4. COMPETITIONS AND AWARD CATEGORIES

The Board awards grants on the basis of an annual general competition, occasionally augmented by special competitions when funding is available. The eleventh competition, with a closing date of March 15, 1990, invited applications in the following categories:

a) Establishment Grants to assist new researchers in becoming established in the province, to a maximum of $30,000 per annum for up to two years, non-renewable.

b) Research Fellowships in two categories: *Postdoctoral Fellowships*, for holders of a doctorate degree who wish to develop their fields of research and equip themselves for independent investigation in institutions in Saskatchewan, are valued at approximately $26,000 to $30,000 per year depending on experience. *Clinical Research Fellowships* support holders of health professional degrees who wish to pursue careers as clinician researchers (i.e., those who remain in practice and conduct research as well). The stipend in this category varies with experience, and as for Postdoctoral Fellowships is commensurate with rates set by the Medical Research Council of Canada.

c) Socio-Health Research Grants of up to $30,000 per year for up to two years, non-renewable, open to all socio-health researchers in Saskatchewan.

d) Equipment Grants of up to $30,000 to provide new or essential replacement items for proven investigators with active research programmes and operating grants.

e) Evaluation Research Grants of up to $30,000 per year for up to two years, open to all investigators in Saskatchewan, for projects designed to assess the efficiency and/or effectiveness of health programmes, procedures, policies, etc.

f) Conference and Meeting Grants of up to $5,000 to support meetings of particular importance to the development of health research in Saskatchewan.

5. COMPETITION AND REVIEW PROCESS

The Board uses peer review as the major basis for the granting of awards. Appendices 3A, 3B, and 3C list the membership of the Biomedical, Socio-Health, and Personnel Awards Review Committees respectively during 1990-91. Each committee is chaired by a member of the Board, but all other members are drawn from the research community.

The review committees examine, adjudicate, and rank the applications received, and make recommendations to the Board on the order of funding priorities. Research grant applications are sent to two out-of-province experts for assessment. Personnel awards applications are assessed by the committees only. The Board receives the reports of the review committees and retains final authority to make all appropriations after considering the recommendations of its review committees.

6. ENSURING BOARD ACCOUNTABILITY

The Board is a public agency, and has put in place a number of mechanisms to ensure that the public receives the best possible value for its investment in health research.

First, as described above, all applications are assessed in competitions governed by rules and eligibility criteria carefully described in Board publications. The cornerstone of the assessment process is peer review: the applications are judged by experts in the various disciplines, and awards are made on the basis of scientific merit. Peer review is rigorous, and the Board expects that only proposals of high quality will be recommended by its review committees for funding. The Board does not fund applications which do not meet standards of excellence, even if money is available in the budget. As in most granting agencies, however, there are typically far more worthy applications than can be funded given resource limitations.

Second, the Board requires both progress reports and final reports on two-year grants, which make up the vast majority of funded projects. (Only a final report is due from holders of one-year awards.) These reports verify that the projects are on time, indicate any required changes in objectives or procedures (not uncommon in science), and list publications arising from the work. Grantees are aware that accepting an SHRB award entails an obligation to conduct the work in a timely and responsible fashion and to report the results.

Third, all proposals must meet high standards of ethical review, in accordance with the guidelines of the Medical Research Council of Canada and the Canadian Council on Animal Care. The grant review committees have the right to add any ethical conditions they see fit even where the applications have been judged to meet the national standards.

Fourth, the Board monitors the ongoing performance of its grantees through surveys, and the compilation of a database tracking performance after the SHRB project has been completed. Through these means we are aware of how well our grantees fare in competitions for national funding (usually very well to date); their publication records (also very good); and the impact of our grants on career development (usually reported as crucial).

Fifth, the Board reviews its programmes and policies at regular intervals to ensure that the way we allocate our limited funds achieves the greatest impact on health research development in the province. Over the years we have modified our programmes and priorities on several occasions in response to what might be described as "market conditions." For example, we have shifted our focus to new researchers in the biomedical areas because an investigator's first grant is vital to the development of the subsequent career. We have set aside funds for group grants because health research has become increasingly complex and multidisciplinary. We develop detailed criteria for new programmes such as evaluation research in order to spend targetted funds in accordance with the terms and conditions acceptable to the funding agency.

Sixth, the Board monitors the trends and activities of other provincial and national agencies to determine where our programmes might overlap, where our unique provincial needs require special attention, and whether our initiatives are consistent with health research trends in a broader context.

Finally, the Board tries to ascertain the impact of our expenditures on the provincial economy. This is a difficult exercise, but it has become clear over the years that every $30,000 spent by the Board creates one new job

directly, and there are spinoff effects as well. As well as developing health research *per se* in Saskatchewan, the Board is a very efficient engine of job creation, providing opportunities for highly skilled (and often "home grown") young scientists and technicians to apply their expertise in the province.

7. PROFILE OF THE ELEVENTH GENERAL COMPETITION (1990-91)

Table 1 summarizes the total number of applications, the numbers recommended for funding by the review committees, and the eventual funding decisions of the Board arising from the 1990-91 General Competition.

TABLE 1

SUMMARY OF ELIGIBLE APPLICATIONS RECEIVED, RECOMMENDED, AND FUNDED GENERAL FUND COMPETITION 11 (1990-91)

	APPL. RECEIVED		APPL. RECOMMENDED		APPL. FUNDED	
GRANT CATEGORY	No.	$ Requested	No.	$ Requested	No.	$ Awarded
Biomed. Establ.	9	$ 487,857	8	$ 429,428	8	$ 355,800
Biomed. Equip	1	26,620	1	26,620	1	26,620
BIOMED. SUBTOTALS	**10**	**$ 514,477**	**9**	**$ 456,048**	**9**	**$ 382,420**
Socio-Health Establ.	5	$ 169,701	3	$ 100,416	3	$ 100,416
Socio-Health Research	8	278,315	4	199,690	4	199,690
Socio-Health Equip.	1	30,000	0	0	0	0
SOCIO-HEALTH SUBTOT.	**14**	**$ 478,016**	**7**	**$ 300,106**	**7**	**$ 300,106**
Postdoctoral Fell.	16	$ 789,360	11	$ 519,960	6	$ 274,800
Clin. Research Fell.	4	266,860	3	191,690	2	116,520
FELLOWSHIP SUBTOT.	**20**	**$1,056,220**	**14**	**$ 711,650**	**8**	**$ 391,320**
Conference Grants	1	$ 5,000	1	$ 5,000	1	$ 5,000
GRAND TOTALS	**45**	**$2,053,713**	**31**	**$1,472,804**	**25**	**$1,078,846**

The number of applications received and the total amount requested were up 18% and 25% respectively from 1989-90. The figures in no way reflect the "real" demand existing in the research community due to the highly restricted nature of Board competitions (i.e., only a small subset of the health research community is eligible to apply because of funding limitations). The number of awards and dollar amounts were up 14% and 13% respectively from the previous year, again reflecting the Board's financial capacity.

The data do reflect, for the first time, a closing of the gap between the biomedical and socio-health research communities in terms of number of applications and funds requested. The number of biomedical establishment grants was unusually low, likely reflecting a smaller than normal number of new entrants to the system, while the number of socio-health applications was larger than usual. It is too early to define these data as a trend, but the Board is encouraged by what may be a broadening of the social science health research community. (The figures may also reflect the increasing difficulty of obtaining funds from larger national agencies such as SSHRC and NHRDP.)

The figures in the table exclude the $200,000 awarded to the two groups funded under the Strategic and Matching Grants Programme, described below. The grants and awards for the 1990 competition are listed in Appendix 4.

8. STRATEGIC AND MATCHING GRANTS PROGRAMME

As reported in previous annual reports, the main purpose of the programme is to provide sufficient resources over an initial period of time to allow groups of investigators to develop more fully than would be the case if they continued to work in relative isolation. The expectation is that the initial funding provided by the SHRB over a three-to-five-year period will increase the capacity and performance of research groups to the point where they can compete for large-scale funding from national and international agencies.

The Board has awarded grants to two groups to date, and their accomplishments over the past year are described in the following sections.

The Reproductive Biology Research Unit (RBRU)

The RBRU was founded in 1987 with the appointment of Dr. Bruce Murphy as a professor in the Department of Obstetrics and Gynecology in the College of Medicine. The Unit is a collaboration among basic and clinical scientists to advance understanding of, and develop treatments for reproductive disorders. Previous Annual Reports have described the highlights of the RBRU's activities for 1988 and 1989 (the Unit operates on a calendar year basis). Highlights during 1990 include:

* 35 publications in refereed journals, 11 abstracts, and the completion of a master's thesis;

* 27 presentations to national and international scientific meetings;

* the purchase by Royal University Hospital of a sophisticated, dedicated ultrasound machine to support the research of Dr. Pierson and his colleagues;

* external annual funding as of December 31, 1990 of approximately $800,000 (excluding the $100,000 per year SHRB grant), and several hundred thousand dollars annually in addition pending the outcome of applications submitted.

Two of the basic scientists funded from the SHRB award have been very successful in obtaining external funding from national agencies. Dr. Roger Pierson has received an MRC Development Grant which covers both salary and operating expenses for five years concluding in 1994. Dr. Rajkumar Kadaba has received both a Canadian Diabetes Association and NSERC Operating Grant, and has been very active in both publishing and in pursuing additional funding. This indicates that among other things, the "matching" aspect of this Strategic and Matching Grant has been very successful; the multiplier effect of the Board's initial investment is substantial and likely to grow.

Despite the admirable record of the RBRU to date, there are problems which relate to the general research infrastructure at the University of Saskatchewan, and by extension in the province as a whole. One of the terms of the Strategic and Matching Grants Programme is that there be a review at the end of three years. The review revealed that the RBRU is significantly hampered by space problems, and particularly the lack of a contiguous suite of laboratories sufficient to house the Unit's personnel and equipment, and to foster the interactions essential to a developing group dynamic and successful links between basic and clinical scientists. Because the physical facilities for the RBRU are inadequate, the prospects for obtaining a Medical Research Council Program or Group Grant are severely diminished. Larger-scale research enterprises require commitments on the part of the investigators, the host institution, and granting agencies, and it is demonstrably the case that the strength of the whole is no greater than its weakest link. With University funding increasingly tight, basic infrastructural developments are frequently being put on hold. This situation raises the issue of whether research groups can develop even with substantial external operating funding. In this sense, the extraordinarily promising beginning of the RBRU has resulted in growing pains that are not of its own making, and how these events unfold will be instructive for the future of health research on a larger scale in Saskatchewan.

<u>The Pharmacoepidemiology Research Consortium</u>

The Consortium spent its first year developing the Saskatchewan Psychiatric Pharmacoepidemiology Database (SPPD), a database linking Saskatchewan's renowned health care utilization files. The final stages of the development of the SPPD were completed in March 1990, and the database contains information on almost 880,000 individuals and over 143 million health care events (e.g., physician visit, laboratory test, referral, hospital stay, etc.). Through July 1990, the core Consortium investigators had applied for eight project grants of which the outcome was known for seven. Six of the seven applications were successful for a total of $327,681. Among the funded

projects are studies on the use of benzodiazepines (minor tranquilizers); patients with chronic anxiety disorders; and an adverse drug reaction alerting scheme.

Members of the group published thirteen articles and chapters in books through mid-1990, several of which, however, represented work done in previous employment. There were eight presentations at various research meetings. Five graduate students at the MSc level are working on projects related to the research agenda of the Consortium.

The Consortium has established a network with the Pharmacoepidemiology Units at McGill and McMaster Universities which will facilitate joint research projects, joint educational experiences for graduate students, and joint seminars and workshops.

A key issue which affects the development of the Consortium and the research potential of many investigators in the province is the seemingly high cost of obtaining and processing Saskatchewan Health data. The Consortium spent $162,000 of the $500,000 SHRB grant to assemble and update the linked processing as well. The Board has been approached on a number of occasions by researchers who have expressed concern at these costs, which may deter both applicants and granting agencies from funding otherwise worthwhile projects. The Board has undertaken to examine the situation in favour of making it easier to do high quality research in Saskatchewan, and the Board looks forward to a successful resolution of these issues in the near future.

9. EVALUATION RESEARCH

In 1989-90 and 1990-91 the Board received an annual grant of $500,000 to support evaluation research. This marks the beginning of a programme which, if funding continues over a number of years, could make a significant impact on Saskatchewan's health system. Last year's Annual Report elaborated on the inaugural event in the Board's development of evaluation research: the January 1990 conference entitled *Evaluation: The Key to Tomorrow's Health System*, attended by over 300 members of the health care and research communities.

This led to the initial evaluation research grants competition in March 1990, which produced seventeen applications of which seven were funded to a total of $302,608. The majority of the applications involved clincial studies of procedures, interventions, and their effectiveness or efficiency. There were relatively few in what might generally be described as health services research, which looks at programmes and policies on a broader scale. The Board was pleased that a comparatively large number of applications were submitted given the brief interval between the announcement of the competition and the deadline. Table 2 summarizes the competition statistically.

TABLE 2

SUMMARY OF ELIGIBLE APPLICATIONS
RECEIVED, RECOMMENDED, AND FUNDED
EVALUATION FUND
COMPETITION 11 (1990-91)

	APPL. RECEIVED		APPL. RECOMMENDED		APPL. FUNDED	
GRANT CATEGORY	No.	$ Requested	No.	$ Requested	No.	$ Awarded
Biomed. Establ.	3	$ 179,113	1	$ 59,884	1	$ 59,884
Biomed. Research	6	279,601	4	183,145	4	183,145
BIOMED. SUBTOTALS	**9**	**$ 458,714**	**5**	**$ 243,029**	**5**	**$ 243,029**
Socio-Health Establ.	2	$ 87,398	1	$ 12,987	1	$ 12,987
Socio-Health Research	6	174,762	1	46,592	1	46,592
SOCIO-HEALTH SUBTOT.	**8**	**$ 262,160**	**2**	**$ 59,579**	**2**	**$ 59,579**
Conference Grants	1	$ 5,000	0	$ 0	0	$ 0
GRAND TOTALS	**18**	**$ 725,874**	**7**	**$ 302,608**	**7**	**$ 302,608**

The Board established a separate Evaluation Committee to consider how best to develop the field in Saskatchewan. While the Board was pleased with both the number and caliber of applications in the initial competition, it concluded that other avenues should be pursued in order to promote studies of a larger and more complex nature whose impact on future developments in the health system could be very significant. The Board also recognized that it had the responsibility to play a developmental role in this regard rather than simply holding annual competitions for relatively small, shorter term projects.

Accordingly, the Board set aside $500,000 to fund a Health Evaluation Research Group (HERG) at either or both of the two provincial universities. The Board invited an application from each University, indicating at the same time that it would be pleased to entertain a single submission involving both campuses. This invitation requested the Universities to submit general proposals on how they would embark upon establishing an ongoing health evaluation research presence and centre of activity; in this sense, the

applications were to concentrate on an overall vision rather than project-specific intentions.

The process also involved commissioning a three-person team of external evaluation researchers to site visit each campus and meet with the key investigators associated with the proposals. This process and the outcome took place in the spring and early summer of 1991, and the results will be reported on in next year's annual report.

APPENDIX 1
SASKATCHEWAN HEALTH RESEARCH BOARD
APRIL 1, 1990 THROUGH MARCH 31, 1991

ROBERTSON, Dr. Bev
(Chairperson)
Dept. of Physics and Astronomy
University of Regina
Regina, Saskatchewan

BALA, Dr. Marvin
(Vice-Chairman)
Department of Medicine
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

ALLSEN, Mr. Gordon
Swift Current Union Hospital
Swift Current, Saskatchewan
(Until December 4, 1990)

ANDERSON, Dr. Dianne
Department of Education
2220 College Avenue
Regina, Saskatchewan
(Until December 4, 1990)

BAILEY, Ms. Miriam
Policy and Planning Branch
Department of Education
2220 College Avenue
Regina, Saskatchewan
(Beginning January 10, 1991)

BLACKBURN, Dr. Jim
College of Pharmacy
University of Saskatchewan
Saskatoon, Saskatchewan

HADDOCK, Ms. Shirley
Rosetown, Saskatchewan
(Until August 14, 1990)

LAYNG, Ms. Karen
Policy and Health Economics Branch
Saskatchewan Health
3475 Albert Street
Regina, Saskatchewan
(Beginning January 10, 1991)

LI, Dr. Peter
Department of Sociology
University of Saskatchewan
Saskatoon, Saskatchewan

MURPHY, Dr. Bruce
Reproductive Biology Research Unit
Royal University Hospital
Saskatoon, Saskatchewan

POULIN, Dr. Louis
681 15th Avenue West
Prince Albert, Saskatchewan

STARK-ADAMEC, Dr. Cannie
Department of Psychology
University of Regina
Regina, Saskatchewan

YEATES, Ms. Glenda
Associate Deputy Minister
Saskatchewan Health
3475 Albert Street
Regina, Saskatchewan
(Until December 4, 1990)

APPENDIX 2

FINANCIAL STATEMENTS

AND

THE AUDITOR'S REPORT THEREON

SASKATCHEWAN HEALTH RESEARCH BOARD

FINANCIAL STATEMENTS

Year Ended March 31, 1991

OFFICE OF THE PROVINCIAL AUDITOR

REGINA, SASKATCHEWAN

AUDITOR'S REPORT

To the Members of the Legislative Assembly
of Saskatchewan

I have audited the balance sheet of the Saskatchewan Health Research Board as at March 31, 1991 and the statements of revenue, expenditure and fund balance and changes in financial position for the year then ended. These financial statements are the responsibility of the Board's management. My responsibility is to express an opinion on these financial statements based on my audit.

I conducted my audit in accordance with generally accepted auditing standards. Those standards require that I plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In my opinion, these financial statements present fairly, in all material respects, the financial position of the Board as at March 31, 1991 and the results of its operations and the changes in its financial position for the year then ended in accordance with the accounting principles disclosed in Note 2 to the financial statements.

W.K. Strelioff

Regina, Saskatchewan
July 19, 1991

W. K. Strelioff, C.A.
Provincial Auditor

Statement 1

SASKATCHEWAN HEALTH RESEARCH BOARD

BALANCE SHEET

As at March 31

	1991 General Fund	1991 Evaluation Fund	1991 Total	1990 Total
ASSETS				
Cash	$ 4,574	$ 131	$ 4,705	$ 17,798
Accrued interest receivable	73,773	22	73,795	71,462
Interfund receivable (payable)	(1,003,380)	1,003,380	---	---
Short term investments, at cost which approximates market value	2,316,809	---	2,316,809	2,067,414
Prepaid expenses	1,370	---	1,370	1,283
Furniture and equipment	25,396	---	25,396	21,917
Total Assets	$1,418,542	$1,003,533	$2,422,075	$2,179,874
LIABILITIES AND EQUITY				
Liabilities:				
Accounts payable	$ 6,141	$ ---	$ 6,141	$ 6,530
Grants payable	1,052,147	438,097	1,490,244	1,364,228
Total Liabilities	1,058,288	438,097	1,496,385	1,370,758
Equity:				
Equity in furniture and equipment	25,396	---	25,396	21,917
Fund balance (Note 3)	334,858	565,436	900,294	787,199
Total Equity	360,254	565,436	925,690	809,116
Total Liabilities and Equity	$1,418,542	$1,003,533	$2,422,075	$2,179,874

(See accompanying notes)

Statement 2

SASKATCHEWAN HEALTH RESEARCH BOARD

STATEMENT OF REVENUE, EXPENDITURE AND FUND BALANCE

Year Ended March 31

	1991			1990
	General Fund	Evaluation Fund	Total	Total
Revenue:				
Grant - Department of Health	$1,000,000	$ 500,000	$1,500,000	$1,500,000
Interest (Note 7)	193,163	90,248	283,411	176,950
Recovery of administration costs (Note 6)	39,000	---	39,000	38,800
Other	1,096	103	1,199	9,265
	1,233,259	590,351	1,823,610	1,725,015
Expenditure:				
Research grants	1,235,119	304,243	1,539,362	1,232,812
Wages and benefits	87,371	---	87,371	89,612
Administrative and operating expenses	10,359	887	11,246	10,672
Honoraria and expenses of the board and committees	13,210	3,357	16,567	10,076
Furniture and fixtures	3,479	---	3,479	2,707
Rent	13,490	---	13,490	12,766
Administration cost (Note 6)	---	39,000	39,000	38,800
	1,363,028	347,487	1,710,515	1,397,445
Excess of revenue over expenditure (expenditure over revenue)	(129,769)	242,864	113,095	327,570
Fund balance, beginning of year as restated (Note 6)	464,627	322,572	787,199	459,629
Fund balance, end of year - to Statement 1	$ 334,858	$ 565,436	$ 900,294	$ 787,199

(See accompanying notes)

Statement 3

SASKATCHEWAN HEALTH RESEARCH BOARD

STATEMENT OF CHANGES IN FINANCIAL POSITION

Year Ended March 31

	1991			1990
	General Fund	Evaluation Fund	Total	Total
Cash provided by (used in):				
Operating activities:				
Excess of revenue over expenditure (expenditure over revenue) for the year (Statement 2)	$ (129,769)	$ 242,864	$ 113,095	$ 327,570
Net change in non-cash working capital (Note 5)	365,940	(242,733)	123,207	491,943
	236,171	131	236,302	819,513
Investment activities:				
Proceeds from matured investments	4,753,928	111,291	4,865,219	4,189,082
Purchases of investments	(5,003,323)	(111,291)	(5,114,614)	(5,008,237)
	(249,395)	---	(249,395)	(819,155)
Net (decrease) increase in cash	(13,224)	131	(13,093)	358
Cash, beginning of year	17,798	---	17,798	17,440
Cash, end of year	$ 4,574	$ 131	$ 4,705	$ 17,798

(See accompanying notes)

SASKATCHEWAN HEALTH RESEARCH BOARD

NOTES TO THE FINANCIAL STATEMENTS

March 31, 1991

1. Authority

The Saskatchewan Health Research Board was established under the provisions of The Health Research Act for the purpose of assisting and stimulating research in the healing arts and health sciences. Pursuant to proclamation of the Act, the Board came into being on September 15, 1979. During 1981 the Board was awarded status as a registered charity under The Income Tax Act.

Under The Health Research Act, the Saskatchewan Health Research Fund was also established, through which all transactions of the Board are conducted. This Fund is comprised of two components: the General Fund and the Evaluation Fund. The revenues and expenditures for each component are separately accounted for in the financial statements.

The Evaluation Fund was established in the 1989/90 fiscal year pursuant to an agreement entered into between the Department of Health and the Saskatchewan Health Research Board under which the Board agreed to administer and allocate monies received from the Department. The agreement also provided that the use of these funds be restricted to evaluation of health technology and procedures and costs incurred in administering and allocating the funds.

2. Accounting Policies

a) Fund Accounting

The Saskatchewan Health Research Board follows fund accounting procedures in which a self-balancing group of accounts is provided for each Fund.

b) Research Grants

i) Annual Competitions

The Saskatchewan Health Research Board holds annual competitions through which funds are awarded to successful applicants for terms of up to two years. The Board follows the policy of recording the grant awards approved and committed during the year as expenditures. At year end, awards which have not been paid to individuals or to institutions administering awards on behalf of researchers but which are still committed for a competition are shown as grants payable on the balance sheet.

ii) Strategic Matching Grants

In 1986, the Board embarked upon a Strategic and Matching Grants Program involving the setting aside of money to fund major projects/groups over a period of a number of years. Two such projects have been approved by the Board and extend over five years.

1) The Reproductive Biology Research Unit, Department of Obstetrics and Gynaecology of the College of Medicine at the University of Saskatchewan (Murphy Group); and

2) The Pharmaco-epidemiology Research Consortium, Department of Psychiatry at the University of Saskatchewan (D'Arcy Group).

The Board follows the policy of recording the grants awarded in conformity with the originally anticipated funding requirements of each group as opposed to recording the amount as an expenditure during the year of the original commitment. The amount recorded for each project is $100,000 per year commencing in the year the agreements are signed. Each agreement contained a stipulation concerning positive evaluations of the research program by the Board.

The balance of funds advanced to administering institutions in excess of the current requirements of researchers is held in trust by those institutions until drawn down by the researchers. In the event of the completion or termination of a project, or non-compliance with the terms of an award, the balance of unexpended funds is treated as a reduction of grant expenditure in the year that this is determined. These funds are then available to be awarded for future research.

c) Furniture and Equipment

Furniture and equipment purchases are charged as an expense against operations in the year of purchase and are therefore not depreciated. All furniture and equipment additions charged to expense are reflected in the statement of revenue, expenditure and fund balance. To reflect accountability for furniture and equipment in the financial statements, it is necessary to record them as balance sheet assets with a corresponding entry to "Equity in Furniture and Equipment". On disposition, the original cost of fixed assets is removed from the furniture and equipment and equity in furniture and equipment accounts and proceeds are recorded as other revenue.

3. Cash and Investments

In accordance with a request of the Department of Health, the Board agreed to retain portions of Provincial grants provided in previous years to the General Fund as invested capital. During 1984/85, the Department authorized the Board to begin drawing down on these accumulated funds to support current expenditures for research and administration. Accordingly, the Board considers that, of the cash and investments balance at March 31, 1991, $88,437 was being retained as invested capital of the General Fund (1990 - $179,406).

4. Related Parties

Included in these financial statements are expenses resulting from routine operating transactions conducted at prevailing market prices with various Saskatchewan Crown controlled departments, agencies and corporations with which the Board is related.

Account balances resulting from these transactions are included in the balance sheet and are settled on normal trade terms.

5. Changes in Components of Non-Cash Working Capital

	1991			1990
	General Fund	Evaluation Fund	Total	Total
(Increase) in interest receivable	$ (2,311)	$ (22)	$ (2,333)	$ (64,362)
Decrease (increase) in interfund receivable (payable)	542,204	(542,204)	---	---
(Increase) in other assets	(87)	---	(87)	---
(Decrease) in accounts payable	(389)	---	(389)	(1,097)
(Decrease) increase in grants payable	(173,477)	299,493	126,016	557,402
Net changes in non-cash working capital	$ 365,940	$ (242,733)	$ 123,207	$ 491,943

6. Change in Accounting Policy

During the year the Board has retroactively adopted the policy of charging the Evaluation Fund 33% of the administrative costs of the General Fund (exclusive of direct costs associated with health research competitions) effective April 1, 1989 with the inception of the Evaluation Fund in 1989/90. The amount of the interfund charge is reflected as an administrative fee in the financial statements.

The effect on 1989/90 financial statements is to increase recovery of administration costs, and administration costs by $38,800. Accordingly, the Fund balance and interfund receivable for the year ended March 31, 1990 increased by $38,800 for the General Fund and the Fund balance and interfund payable decreased by an equal amount for the Evaluation Fund. The combined fund balance did not change.

7. Interest Allocation

Out of interest earned by the General Fund an amount is allocated to the Evaluation Fund based on its net cash flow position each month. The average interest is calculated by taking the rate at the beginning of each month from November, 1989 to March 31, 1991 and averaging it.

8. Commitments

As at March 31, 1991, the Board was committed to a lease agreement for office premises with payments of $1,172 per month to July 31, 1993.

The Board has committed $1 million to two major projects under the Strategic Matching Grants Programs. Of this commitment the amount recorded as an expenditure in the current year is $200,000 and the accumulated expenditure recorded to March 31, 1991 is $700,000.

APPENDIX 3A

SASKATCHEWAN HEALTH RESEARCH BOARD
BIOMEDICAL REVIEW COMMITTEE
COMPETITION 11 (1990-91)

BALA, Dr. Marvin (2)
(Chairperson)
Department of Medicine
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

ANGEL, Dr. Joseph (1)
Department of Biochemistry
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

CONLY, Dr. John (3)
Department of Microbiology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

DESAUTELS, Dr. Michel (1)
Department of Physiology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

DOIGE, Dr. Cecil (3)
Department of Vet. Pathology
Western College of Vet. Med.
University of Saskatchewan
Saskatoon, Saskatchewan

GALLAGHER, Dr. Charles (2)
Department of Medicine
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

JUURLINK, Dr. B.H.J. (1)
Department of Anatomy
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

KHACHATOURIANS, Dr. George (2)
Applied Microbiology and
Food Science
College of Agriculture
University of Saskatchewan
Saskatoon, Saskatchewan

SIBLEY, Dr. John (1)
Department of Medicine
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

WEISBART, Dr. Melvin (1)
Department of Biology
Faculty of Science
University of Regina
Regina, Saskatchewan

WILSON, Dr. Tom (2)
Department of Pharmacology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

Figure in parentheses indicates number of years served, including the current competition.

APPENDIX 3B

SASKATCHEWAN HEALTH RESEARCH BOARD
SOCIO-HEALTH REVIEW COMMITTEE
COMPETITION 11 (1990-91)

STARK-ADAMEC, Dr. Cannie (1)
(Chairperson)
Department of Psychology
Faculty of Arts
University of Regina
Regina, Saskatchewan

ALFANO, Dr. Dennis (2)
Department of Psychology
Faculty of Arts
University of Regina
Regina, Saskatchewan

FOWLER-KERRY, Prof. Susan (1)
College of Nursing
University of Saskatchewan
Saskatoon, Saskatchewan

GILLIS, Ms. Debra (2)
Medical Services Branch
Health and Welfare Canada
1855 Smith Street
Regina, Saskatchewan

MASLANY, Dr. George (2)
Faculty of Graduate Studies
and Research
University of Regina
Regina, Saskatchewan

NILSON, Dr. Ralph (1)
Faculty of Physical Activity
Studies
University of Regina
Regina, Saskatchewan

SILZER, Dr. Kent (1)
Mental Health Services Branch
Saskatchewan Health
T. C. Douglas Building
3475 Albert Street
Regina, Saskatchewan

STRAND, Dr. Linda (1)
Laboratory and Disease
Control Services
Saskatchewan Health
3211 Albert Street
Regina, Saskatchewan

von BAEYER, Dr. Carl (3)
Department of Psychology
College of Arts and Science
University of Saskatchewan
Saskatoon, Saskatchewan

Figure in parentheses indicates number of years served, including the current competition.

APPENDIX 3C

SASKATCHEWAN HEALTH RESEARCH BOARD
PERSONNEL AWARDS REVIEW COMMITTEE
COMPETITION 11 (1990-91)

MURPHY, Dr. Bruce (1)
(Chairperson)
Reproductive Biology
Research Unit
Department of Obstetrics
and Gynecology
University of Saskatchewan
Saskatoon, Saskatchewan

ASHTON, Dr. Neil (3)
Department of Biology
Faculty of Science
University of Regina
Regina, Saskatchewan

BLAKLEY, Dr. Barry (2)
Dept. of Vet. Physiological
Sciences
Western College of Vet.
Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

DYCK, Dr. Lillian (1)
Neuropsychiatric Research
Unit
Department of Psychiatry
University of Saskatchewan
Saskatoon, Saskatchewan

KALRA, Dr. Jay (1)
Department of (Medical)
Pathology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

LAFERTE, Dr. Suzanne (1)
Department of Biochemistry
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

LEE, Dr. Luciela (1)
Department of Veterinary
Anatomy
College of Vet. Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

SELISKE, Dr. Patrick (1)
Health Status Research Unit
Dept. of Community Health
and Epidemiology
University of Saskatchewan
Saskatoon, Saskatchewan

WALZ, Dr. Wolfgang (1)
Department of Physiology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

ZIOLA, Dr. Barry (1)
Department of Microbiology
College of Medicine
University of Saskatchewan
Saskatoon, Saskatchewan

Figure in parentheses indicates number of years served including the current competition.

APPENDIX 4

SASKATCHEWAN HEALTH RESEARCH BOARD
AWARDS GRANTED
COMPETITION 11 (1990-91)

RESEARCH FELLOWSHIPS

BARBER, Alistair (Boulton, A.)	$	26,040	91-92
Psychiatry (Neuropsychiatric Research Division)		27,840	92-93
University of Saskatchewan			
An investigation of the possible role of phenylethylamine as a modulator of aggressive behaviour			
CHEN, Tao (Kirkpatrick, D. Lynn)		26,040	91-92
Chemistry, University of Regina		27,840	92-93
Synthesis and evaluation of potential anticancer drugs - bioreductive disulfides			
HARRACH (BENKO), Maria (Babiuk, L.)		26,040	91-92
Virology, VIDO; Veterinary Microbiology		27,840	92-93
University of Saskatchewan			
Adenovirus as a novel vaccine production/delivery system			
MURALDIHARA, Dandinasivara (Desautels, M.)		26,040	91-92
Physiology, University of Saskatchewan		27,840	92-93
Influence of alcohol consumption on energy balance and brown fat function			
WEI, Yunyi (Robertson, B.)		29,640	90-91
Physics and Astronomy, University of Regina			
Development of nucleoside analogs as anti-viral agents; Development of methodologies for the elucidation of the detailed charge density of small molecules (not including macromolecules) which have the potential for giving new insights into enzyme-substrate interactions and specificity			
YORK, Laura (Loh, L.)		29,640	90-91
Mircobiology, University of Saskatchewan			
The role of viral glycoproteins in cytotoxic T cell immunity to cytomegalovirus			

CLINICAL RESEARCH FELLOWSHIPS

JURECZEK, Stefan (Lozanoff, S.)		36,360	91-92
Anatomy/Oral Biology, University of Saskatchewan		38,820	92-93
Morphogenetic relationships between the temporomandibular joint, facial anatomy, and mandibular form in human fetuses			

McPARLAND, Ian (Gallagher, C.) Medicine, University of Saskatchewan Effects of oral corticosteroids on human diaphragmatic strength; Effect of physical training on the relation between dyspnoea and inspiratory motor input	41,340	90-91

BIOMEDICAL ESTABLISHMENT GRANTS

ANG, Lee Cyn Pathology, University of Saskatchewan Chromogranin A-like immunoreactivity in human CNS: A study on its changes during neocortical development and the alteration in Alzheimer's	20,000	90-91
BOURNE, Gregory Physiology, University of Saskatchewan Changes in the roles of signal transduction mechanisms in pituitary gonadotrophs	30,000 30,000	90-91 91-92
CODE, William Anaesthesia, University of Saskatchewan Anaesthesia, amnesia and benzodiazepine midazolam	30,000 30,000	90-91 91-92
CROSSLEY, Margaret Psychiatry, Royal University Hospital, Saskatoon Neuropsychological evaluation of cognitive functioning in normal and pathological aging	30,000	90-91
SEMPLE, Hugh Pharmacy, University of Saskatchewan Endocrine regulation of hepatic metabolism of propranolol	30,000 30,000	90-91 91-92
SHUAIB, Ashfaq Medicine, University of Saskatchewan During ischemia inhibitory input into the substantia nigra modulates neuronal damage	30,000 30,000	90-91 91-92
WEISBART, Melvin Biology, University of Regina Presence and function of corticosteroid receptors in the human amnion	22,500 23,300	90-91 91-92
WHITING, Susan Nutrition and Dietetics, University of Saskatchewan A comparison of in vivo and in vitro assessment of the bioavailability of calcium from calcium carbonate supplements	20,000	90-91

SOCIO-HEALTH RESEARCH GRANTS
(* Establishment Grants)

GILLIS, Debra	20,660	90-91
Community Health and Epidemiology		
University of Saskatchewan		
Geographical differences in cancer incidence, survival and mortality among Saskatchewan registered Indians		
HAIVEN, Larry*	10,600	90-91
Industrial Relations and Organizational Behaviour	5,970	91-92
Commerce, University of Saskatchewan		
Public policy and nursing industrial relations		
HAY, Deborah*	16,227	90-91
Psychology, University of Saskatchewan	7,684	91-92
The use of defense mechanisms by children who have been sexually abused		
McDUFFIE, Helen	29,628	90-91
Centre for Agricultural Medicine	29,902	91-92
University of Saskatchewan		
Radon exposure and primary lung cancer in females		
RAWSON, Nigel*	29,946	90-91
Psychiatry, University of Saskatchewan	29,989	91-92
A Saskatchewan adverse drug reaction alerting scheme		
STARK-ADAMEC, Cannie	30,000	90-91
Psychology, University of Regina	30,000	91-92
The socio-health of Saskatchewan first responders: Stress and its alleviation in urban and rural police officers, firefighters, and paramedics		
TAN, Leonard	29,500	90-91
Community Health and Epidemiology	30,000	91-92
University of Saskatchewan		
Hospitalization trends of Northern Saskatchewan residents and Saskatchewan registered Indians		

EVALUATION RESEARCH GRANTS
(* Establishment Grants)

BLOCKA, Kenneth		
Medicine, University of Saskatchewan	23,500	90-91
A prospective controlled trial of short term corticosteroids in hospitalized patients with rheumatoid arthritis	23,000	91-92
BROWNELL, Diane	9,500	90-91
Nursing, Royal University Hospital, Saskatoon	11,500	91-92
Clean versus sterile intermittent catheterization: Effect on urinary tract infections		

GREER, Marianne Pharmacy, University of Saskatchewan Evaluation of trends in antibiotic usage of otitis media in Saskatchewan children	29,942 16,650	90-91 91-92
KOBRINSKY, Nathan* Pediatrics, University of Saskatchewan Effect of ethamsylate and desmopressin on bleeding time in patients with constitutional bleeding disorders, thrombocytopenia, uremia and cirrhosis of the liver	29,942 29,942	90-91 91-92
MAYERS, Irvin Medicine, University of Saskatchewan Treatment and prevention of respiratory complications in the Intensive Care Unit	29,180 29,100	90-91 91-92
SHEPPARD, Suzanne Medicine, University of Saskatchewan Evaluation of physical therapy treatment programmes for Patellofemoral Pain Syndrome	30,000 27,365	90-91 91-92
SPINK, Kevin* Physical Education, University of Saskatchewan Group cohesion, leadership and adherence behaviour in exercise classes	12,987	90-91

EQUIPMENT GRANTS

SHUAIB, Ashfaq Medicine, University of Saskatchewan Small animal respirator; anesthesia delivery system; blood pressure monitoring equipment; blood pressure monitor; temperature measurement equipment; temperature maintaining system, steriotaxic instrument	26,620	90-91

CONFERENCE GRANTS

Symposium on ion regulation in the central nervous system	5,000	90-91